



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In the Matter of the Application of:

Richard N. Whyne et al.

Serial No.: 10/008,410

Filed: November 13, 2001

For: Zero Insertion Force Socket Terminal

Examiner: Phuongchi T. Nguyen Group Art Unit: 2833

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Commissioner for Patents

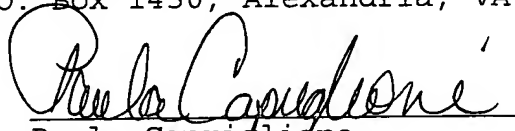
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Paula Capriglione

APPEAL BRIEF

Sir:

This brief is in furtherance of the Notice of Appeal filed in this case on December 16, 2003, and is being filed in triplicate.

Please charge the requisite fee of \$330.00 for filing this brief to Deposit Account No. 23-1950.

I. REAL PARTY IN INTEREST

Tyco Electronics Corporation, 2901 Fulling Mill Road, Middletown, Pennsylvania, 17057, is the owner of this application by assignment dated June 12, 2003, and recorded in the Patent and Trademark Office at Reel 014185, Frame 0065.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

III. STATUS OF THE CLAIMS

Claims 6, 7 and 9 have been canceled. Claims 1-5, 8 and 10-19 remain in the application. Claims 5, 13 and 15-17 stand objected to. Claims 1-4, 8, 10-12, 14, and 18-19 stand rejected and are on appeal.

IV. STATUS OF AMENDMENTS

There are no amendments after final rejection.

V. SUMMARY OF THE INVENTION

The invention defined in independent claim 1 is a terminal 3 for use with a socket 8 (specification at page 4, lines 19-22, and Figures 1 and 2). The terminal 3 comprises a pin engaging portion 10, a retention portion 12, and a mounting portion 14 (specification at page 5, lines 4-5, and Figure 2). The pin engaging portion 10 has a pair of contact arms 24, 26 which are positioned to make electrical engagement with a mating pin 5 (specification at page 5, lines 5-12, and Figures 2 and 4). The retention portion 12 extends from the pin engaging portion 10, and side edges of the retention portion are dimensioned to create a frictional interference with side walls of a cavity of the socket 8 (specification at page 5, lines 19-22). The mounting portion 14 extends from the retention portion 12 in an opposite direction from the pin engaging portion 10. The mounting portion has two resilient legs 50, 52 that are separated by an opening 54 (specification at page 6, lines 1-4). The opening extends from proximate the retention portion to a bridge 60 which extends between the two resilient legs (specification at page 6, lines 8-9). The mounting portion has

an end 62 which is configured to be soldered to a substrate (specification at page 6, lines 11-14).

The invention defined in independent claim 11 is a terminal 3 having a pin engaging portion 10, a retention portion 12, and a mounting portion 14 (specification at page 5, lines 4-5, and Figure 2). The pin engaging portion has a pair of nonsymmetrical contact arms 24, 26 which are configured to make electrical engagement with a mating pin 5 (specification at page 5, lines 5-12, and Figures 2 and 4). The first contact arm 26 of the pair of contact arms is configured to have a longer electrical path and a reduced thickness compared to the second contact arm 24, whereby the first and second contact arms have a matched inductance (specification at page 5, lines 13-16, and Figure 2).

VI. ISSUES

a) Whether claims 1-4, 8, 10-12, and 18-19 are unpatentable under 35 U.S.C. 102(e) as being anticipated by Lemke et al. (US Patent No. 6,443,750).

b) Whether claim 14 is unpatentable under 35 U.S.C. 103(a) as being obvious over Lemke et al. (US 6,443,750) in view of Hsiao (US 6,142,810).

VII. GROUPING OF CLAIMS

Claims 1-3, 8 and 10 stand together.

Claim 4 stands alone.

Claims 11, 12, 14, 18 and 19 stand together.

VIII. ARGUMENT

Claims 1-4, 8, 10-12 and 18-19 stand rejected under 35 U.S.C. 102(e) as being anticipated by Lemke et al. (US-6,443,750), hereinafter referred to as Lemke.

As an aid to explaining the rejection, the Examiner kindly provided a marked-up copy of Figure 7b of Lemke labeled as Attachment 1 to the Office Action of September 18, 2003. A copy of Attachment 1 is attached hereto for reference.

With regard to recitations in claim 1, and with reference to Attachment 1, Lemke discloses a terminal for use with a socket, the terminal comprising a pin engaging portion 345, 343 having a pair of contact arms A1, A2 which are positioned to make electrical engagement with a mating pin P; a retention portion 347 extending from the pin engaging portion, side edges of the retention portion being dimensioned to create a frictional interference with side walls of a cavity of the socket; a mounting portion 357 extending from the retention portion in an opposite direction from the pin engaging portion, and the mounting portion having two legs C that are separated by an opening (space between the two legs).

Claim 1 recites that the opening extends from proximate the retention portion to a bridge which extends between the two legs. The Examiner points to element 357 in Lemke as being a bridge. Applicants respectfully disagree that Lemke's element 357 is equivalent to applicants' bridge.

As recited in claim 1 and shown in Figure 2 of the present application, the opening 54 extends from proximate the retention portion 12 to a bridge 60 which extends between the two legs 50, 52. That is, the retention portion 12 is at one end of the opening 54, and the bridge 60 is at the opposite end of the opening 54.

In contrast, Lemke discloses a retention portion 347 which extends to a mounting section 357 (column 3, lines 34-36 of Lemke). Two legs extend from the mounting section 357, and there is an opening between the legs. However, the opening does not extend to a bridge between the legs. Instead, the legs have free ends, and there is no bridge between the free ends of the

legs. The free ends of the legs can be attached to a solder ball after the contact is installed in a housing, but still, the contact does not have a bridge. If the mounting section 357 is considered to be a bridge, then the opening does not extend from proximate the retention portion to the bridge, as required by claim 1.

For these reasons, applicants believe that the subject matter of claim 1 is not disclosed or suggested by Lemke, and therefore, claim 1 and the claims dependent thereon are believed to be patentable over Lemke.

With regard to claim 4 and also independent claim 11, these claims have some common subject matter and will be discussed together. Among other things, claims 4 and 11 relate to a terminal comprising a pin engaging portion having a pair of nonsymmetrical contact arms which are positioned to make electrical engagement with a mating pin. A first contact arm of the pair of contact arms is configured to have a longer electrical path across which signals are transmitted than a second contact arm, and the first contact arm has a reduced thickness compared to the second contact arm, whereby the first contact arm is configured to have a matched inductance to the second contact arm.

With reference to Attachment 1, Lemke discloses a terminal having a pair of nonsymmetrical contact arms wherein a first contact arm (A1) has a longer electrical path than a second contact arm (A2).

Still referring to Attachment 1, the Examiner contends that the first contact arm (A1) has a reduced thickness (T1) compared to the thickness (T2) of the second contact arm (A2). Applicants respectfully disagree with this contention.

At first glance, Fig. 7b of Lemke (Attachment 1) appears to show that the first contact arm has a corner portion with a reduced thickness (T1). However, Fig. 7a of Lemke shows that

the corner portion is bent out of the plane of the main portion of the contact arm. Because the corner portion is bent out of the plane, an edge surface of the corner portion is being viewed almost tangentially in Fig. 7b, and therefore the edge surface appears to have a reduced thickness compared to the second contact arm. This is only illusory, and nowhere does Lemke teach that the corner portion has a reduced thickness. In fact, Lemke teaches exactly the opposite. In column 7, lines 45-50, Lemke states that the second arm 343 is shorter than the first arm 345, and that in order to balance spring rates of the arms, the width of the long arm 345 can be greater than the width of the short arm 343. Lemke does not teach or suggest that the width of the long arm can be less than width of the short arm. Lemke does not even mention inductance matching of the arms, and Lemke does not provide any motivation for making the long arm with a reduced thickness compared to the short arm.

For these reasons, applicants believe that the subject matter of claims 4 and 11 is not disclosed or suggested by Lemke, and therefore, claims 4 and 11, and the claims dependent thereon, are believed to be patentable over Lemke.

With regard to claim 14 which stands rejected under 35 U.S.C. 103(a) as being obvious over Lemke in view of Hsiao (US 6,142,810), claim 14 depends from claim 11, and therefore claim 14 is believed to be allowable as depending from an allowable independent claim.


IX. CONCLUSION

The rejection of independent claims 1 and 11 under 35 U.S.C. 102(e) should be reversed because the invention defined in these claims is not known or made obvious from the applied reference, and dependent claims 2-4, 8, 10-12, 14 and 18-19 should be allowable as depending from allowable independent claims.

The Board is respectfully requested to reverse the rejections of the claims and to indicate allowability thereof.

Respectfully submitted,

Richard N. Whyne et al.
Applicants

A handwritten signature in cursive script, reading "Robert Kapalka", written over a horizontal line.

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APPENDIX
CLAIMS ON APPEAL

1. A terminal for use with a socket, the terminal comprising:

a pin engaging portion having a pair of contact arms which are positioned to make electrical engagement with a mating pin;

a retention portion extending from the pin engaging portion, side edges of the retention portion being dimensioned to create a frictional interference with side walls of a cavity of the socket;

a mounting portion extending from the retention portion in an opposite direction from the pin engaging portion, the mounting portion having two resilient legs that are separated by an opening, the opening extending from proximate the retention portion to a bridge which extends between the two resilient legs, and the mounting portion having an end which is configured to be soldered to a substrate.

2. The terminal as recited in claim 1 wherein the pair of contact arms are nonsymmetrical, a first contact arm of the pair of contact arms is configured to have a longer electrical path across which signals are transmitted than a second contact arm.

3. The terminal as recited in claim 2 wherein a bight integrally connects the first and second arms together, a centerline of the bight is offset from a centerline of the terminal.

4. The terminal as recited in claim 3 wherein the first contact arm has a reduced thickness compared to the second contact arm, whereby the first contact arm is configured to have a matched inductance to the second contact arm.

5. The terminal as recited in claim 1 wherein the retention portion is positioned proximate the pin engaging portion, a neck member integrally attaches the pin engaging portion to the retention portion, the neck member providing the flexibility required between the retention portion and the pin engaging portion to allow the pin engaging portion to move relative to the retention portion to compensate for respective mating pins which are slightly misaligned.

8. The terminal as recited in claim 1 wherein the mounting portion has a pair of positioning members that are loosely received in slots provided in the socket to allow for movement of the two resilient legs relative to the retention portion.

10. The terminal as recited in claim 1 wherein the contact arms have a reduced material thickness in high stress areas to increase the compliancy of the contact arms and reduce the spring rate.

11. A terminal for use with a socket, the terminal comprising:
a pin engaging portion having a pair of nonsymmetrical contact arms which are positioned to make electrical engagement with a mating pin, a first contact arm of the pair of contact arms is configured to have a longer electrical path across which signals are transmitted than a second contact arm, the first contact arm has a reduced thickness compared to the second contact arm, whereby the first contact arm is configured to have a matched inductance to the second contact arm;

a retention portion extending from the pin engaging portion, side edges of the retention portion being dimensioned to create a frictional interference with side walls of a cavity of the socket; and

a mounting portion extending from the retention portion in an opposite direction from the pin engaging portion, the mounting portion having a solder pad for soldering to a substrate.

12. The terminal as recited in claim 11 wherein a bight integrally connects the first and second arms together, a centerline of the bight is offset from a centerline of the terminal.

13. The terminal as recited in claim 11 wherein the retention portion is positioned proximate the pin engaging portion, a neck member integrally attaches the pin engaging portion to the retention portion, the neck member providing the flexibility required between the retention portion and the pin engaging portion to allow the pin engaging portion to move relative to the retention portion to compensate for respective mating pins which are slightly misaligned.

14. The terminal as recited in claim 11 wherein the mounting portion has two resilient legs which extend from the retention portion.

15. The terminal as recited in claim 14 wherein the two resilient legs are separated by an opening , the opening extending from proximate the retention portion to a bridge which extends between the two resilient legs.

16. The terminal as recited in claim 15 wherein the two resilient legs have positioning members extending therefrom at a distance spaced from the retention portion, the positioning members cooperate with slots provided in the socket and are loosely retained therein to allow for movement of the two resilient legs relative to the retention portion.

17. The terminal as recited in claim 16 wherein the positioning members are positioned proximate the solder pad such that the lateral movement of the solder pad will be controlled.

18. The terminal as recited in claim 14 wherein the solder pad is spaced from the retention portion a sufficient distance to allow the two resilient legs to resiliently compensate for misalignment or movement of the solder relative to the solder pad.

19. The terminal as recited in claim 11 wherein the contact arms have a reduced material thickness in high stress areas to increase the compliancy of the contact arms and reduce the spring rate.

Attachment 1

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Sep. 3, 2002

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